Simple Saver System®

Thermal Design

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ICE ARENA SPECIFICATIONS:

Simple Saver System® for New Pre-Engineered Metal Building Indoor Ice Arenas
(with OSHA Compliant Through Fall Protection and a Ten-year Limited Material Warranty)
MasterFormat™ Division 7: Thermal Protection
MasterFormat™ Division 13: Special Construction, Section 13 34 19–Metal Building Systems

PART I: GENERAL

Work Included: Interior liner system fabric of the color specified, support strapping of the appropriate color, fasteners of the appropriate type and color, sealants, thermal break materials and thermal insulation of the appropriate type to insulate the roof and wall areas to the full designed R-value of the building as specified. The installed liner system shall also provide the following OSHA required compliances to save and protect contractors, workers, inspectors, owners and other individuals (29 CFR-1926.751 "Controlling Contractors") from injury, penalty and liability, without added cost:

- **A** "Through fall protection" (29 CFR-1926.501, 1926.760)
- **B** "Protection from falling objects" (29 CFR-1926.759)
- **C** "Protection from falls through roof openings" (29 CFR-1926.759)
- **D** "Product-related project safety training" (29 CFR-1926.761)
- **E** "Product-related project specific safety plan" (29 CFR-1926.752)

Quality Assurance: Provide the materials in original manufacturer's packages together with detailed instructions and project drawings of the installation. Materials shall be inspected for damage, proper sizes and quantities upon delivery and stored in a dry, secure manner. Post the detailed training instructions, project specific safety drawings, and plans for OSHA compliance using the product. Installation shall proceed with care to assure proper sealing of the liner system fabric. Insulation shall be placed on (roof) or behind (walls) the liner system fabric in the full-specified thickness without voids and with minimal compression of top layer (if applicable in roofs). Notify Thermal Design (800.255.0776) immediately of any damages, improper sizes or shortages. No changes or substitutions will be allowed unless submitted at least 10 days prior to bid date and in compliance with Simple Saver System standards as set forth in this specification. Substitutions of systems that do not have a continuous vapor retarder on the inside plane of the purlins or girts will not be allowed. Substitutions of systems that do not have OSHA compliant through fall protection will not be allowed. Purlins, girts and insulation must be completely isolated from the inside conditioned air with an effective vapor retarder. Taping or stapling of vapor retarder lap joints is not acceptable. Sealing field joints with a permanent vapor retarder lap sealant is required. Field seams, if any, shall be made on a structural member and mechanically attached with a steel strap and fasteners along its full length.

All exposed parts of the liner system shall be Class A material and have flame spread of 25 or less based on ASTM E84 standards. Vapor retarder fabric shall be white or colored woven coated fabric and triple extrusion-welded seams fabricated in one piece, to fit not less than the full bay length by the width of the building. Buildings more than 100' wide may have field seams on the bottom of a purlin but no less than 50' apart. Any field seams must be sealed with vapor retarder lap sealant. Wall bay minimum fabric size shall be not less than one entire wall bay or end wall column space from the ceiling to the floor. Perimeter edges of the vapor retarder fabric shall be trimmed and sealed to the adjoining steel or fabric with vapor retarder lap sealant. All edges of liner system fabric, including field seams, shall be mechanically fastened with steel retaining straps the full perimeter. In the event that the crew is not experienced in the installation procedures, video taped or on-site installation training shall be requested by the installing contractor from Thermal Design to assure proper installation procedures.

Submittals: Include manufacturer's product brochures; component specifications, samples of the painted support strapping, and samples of the Syseal® reinforced polyethylene vapor retarder fabric, including a sample of the triple extrusion welded seam; specific detailed drawings from Thermal Design for the project showing purlin spacings, support strap locations and spacings, fastening points, liner system fabric sizes and locations; insulation widths and thicknesses, sizes and locations and detailed installation instructions for quality assurance and OSHA compliance.

Safety Compliance Clause: Detailed installation instructions are provided to assure proper installation and function for OSHA safety compliance as an alternative form of through fall protection in metal building structures. Fall protection certificate available free of charge from Thermal Design.

PART II: PRODUCTS

Roof Liner System: Acceptable systems shall be the Simple Saver insulation system (with OSHA compliant through fall protection) manufactured by Thermal Design with an installed total roof insulation R-value of _____ and an average installed thickness of _____ inches. Roof system shall be a ***(select one)***: single- or multi-layer system. A thermal break shall be applied where there is no existing thermal break between metal panel and metal structure. The thermal break shall be ***(select one)***: 3/16" x 3" Quik-Stop Trash Free™ foam tape, 3/8" Snap-R® thermal block, or 1" Snap-R® thermal block.

Wall Liner System: Acceptable systems shall be the Simple Saver insulation system manufactured by Thermal Design with an installed total insulation R-value of _____ and an average installed thickness of _____ inches. Simple Saver System includes a ten year limited material warranty and shall meet the following minimum specifications:

UVMAX® Steel Strap: 100 KSI minimum yield high tensile strength steel, galvanized, primed and then painted the specified color on the exposed side with a clear coat primer on the unexposed side. Minimum size shall be 0.02" x 1" x continuous length. The strap color shall be ***(select one)***: UVMAX 8 White, UVMAX 8 Silver Aspen, UVMAX 8 Toni Taupe™, UVMAX 8 Black or UVMAX 8 Forest Green.

Note: Stainless steel, woven polyester plastic (non-fall protection) and colored strapping is available on a special order basis. Traverse strap pattern shall include one strap six (6) inches away from each rafter flange with the remaining space between rafters divided into equal spaces not to exceed five (5) feet. Longitudinal straps shall be nominally thirty (30) inches on-center, with two adjacent straps at the ridge line.

Fasteners: #12 x ¾", plated self-drilling screws with sealing washers painted to match the specified color for fastening to light gauge steel (up to 12 GA purlins) or #12 x 1¼" plated self-drilling screws with sealing washers, painted to match the specified color for heavier gauge steel (up to ⅜" purlins/bar joist). Special fasteners for wood, concrete and other structure types are available from Thermal Design and should be used when appropriate. Always install two (2) fasteners in the end of each strap for safety and to withstand installation stress, and one (1) fastener at all other designated fastening points.

Syseal® Fabric: Shall be woven reinforced high-density polyethylene yarns coated on both sides with a continuous white or colored polyethylene film. The fabric grade for the roof shall be ***(select one)***: Syseal FP (White), Syseal SW FP (Super White), Syseal SA FP (Silver Aspen), Syseal TT FP (Toni Taupe™), Syseal BLK FP (Black) or Syseal FG FP (Forest Green). The fabric grade for the walls shall be ***(select one)***: Syseal FP (White), Syseal SW FP (Super White), Syseal SA FP (Silver Aspen), Syseal TT FP (Toni Taupe™), Syseal BLK FP (Black) or Syseal FG FP (Forest Green). The fabric shall comply with UL/ULC 723 or ASTM E84, and be Class A compliant with a low flame spread index of 25 or less based on ASTM E84 test standards. This material shall be manufactured in large custom pieces by extrusion welding from roll goods. Pieces shall be fabricated to substantially fit the large defined building areas with minimum practical sealing to be done on job site. Fabric shall be folded to allow for rapid pull-out on the strap support system. The Syseal fabric shall be certified for free fall protection by the manufacturer. Custom colors available by special order. Call 800.255.0776 for details.

Syseal liner system fabric perm rating shall ***(select one)***: be < 0.02 grains per hour per square foot based on ASTM E96, or not function as a vapor retarder but shall be perforated with 3⁄16" minimum holes space not more than four (4) inches apart in each direction.

Sealants: Shall be ***(select one)***: Simple Saver System G524 High Tack Sealant™ for sealing vapor retarder laps and/or Simple Saver System G220 Pressure Sensitive Sealant™ and/or Syseal Sticky Tape (double-sided bonding tape) ¾" wide by 1⁄32" thick extruded vapor retarder sealant from Thermal Design.

Insulation: Shall be fiberglass blanket or batt insulation meeting ASTM C991 Type 1, ASTM E136 and ASTM E84 or other insulation form as may be recommended and submitted by the system manufacturer and approved by the architect during submittals.

Fast-R™ Insulation Hangers: Shall be Fast-R™ preformed, rigid insulation hangers for supporting insulation between wall girts or roof purlins in roof pitches over 4:12. Coiled hangers are not allowed.

Thermal Break: Thermal break shall be ***(select one)***: 3⁄16" thick by 3" wide white Quik-Stop Trash Free™, closed cell polyethylene foam with pre-applied adhesive film and peel-off backing, or ⅜" polystyrene Snap-R thermal block or 1" polystyrene Snap-R thermal block. The selection shall be provided as thermal break where there is no existing thermal break and/or if additional depth space is desired.

PART III: EXECUTION

Simple Saver Roof System: Cut to length and install painted steel straps in the pattern and spacings as shown on the project shop drawings. The straps are installed in tension and span immediately below the bottom plane of the purlins. Position the pre-folded vapor retarder liner system fabric on the strap platform along one eave purlin. Clamp the two bottom corners squarely at the eave and centered on the bay. Pull the other end of the pleat-folded fabric across the building width on the strap platform but below the purlins, pausing only at the ridge to fasten the straps and fabric into position where the plane of the roof changes. Once positioned, the remaining fasteners are installed from the bottom side at each purlin/strap intersection and the edges are sealed and trimmed along the rafters. A similar method can be used starting at the ridge purlin space and pulling the fabric to each eave.

Insulation is unpacked and placed on the vapor retarder liner system. Shake insulation to the specified thickness and install parallel, between purlins. In multi-layer systems, the upper most layer of insulation is placed over and perpendicular to the purlins as the roof sheeting is applied. It is important that the insulation cavity be filled or the cavities be ventilated to minimize the probability of condensation (ventilated and/or dehumidified roof systems are possible with the Simple Saver System). Call Thermal Design 800.255.0776 for details.

Simple Saver Wall System: Sheet the building with just the thermal break (if specified) applied to the exterior of the girts. Insulation is cut to the required lengths to fit vertically between the girts and installed in the girt spaces and impaled on Fast-R insulation hangers. Fluff the insulation to the specified thickness, making sure there are no gaps or voids. Insulate the complete wall section. Apply the wall vapor retarder fabric by clamping it into position over the eave strap. Once in position, the fasteners are installed through the wall straps, eave strap and into each roof strap, permanently clamping the wall fabric between them. Seal the wall fabric and to the roof fabric and to the base angle, or base cee channel as well as the column flanges. Additional straps are installed along the base angle and each column to retain the system permanently in place.

Detailed installation instructions are to be sent along with the project drawings specific for the project and included with the materials in each shipment. Pertinent information is included on the drawings for each project. Review all information and instructions prior to commencement. If any questions arise, contact the manufacturer prior to installation. On-site installation training is available for actual expense. The manufacturer's toll-free hotline is 800.255.0776.

It is crucial in ice arenas that the building envelope has an effective vapor retarder on the warm (normally considered exterior) side of the insulation and must be effectively sealed. All joints, panel junctions and flashings must be effectively caulked. All exterior masonry surfaces must be sealed with a quality vapor retarder material. There must be detailed and diligent inspection of the seals made at all exterior conditions. Failure to do so may result in water vapor entrance into the ceiling and wall cavities and may result in condensation. The Simple Saver System can be applied to many different structure types and installation execution varies slightly. Also, installations and specifications for existing buildings vary.

Note: The Simple Saver System with OSHA compliant through fall protection can be applied to pre-engineered metal buildings and installation execution varies slightly. Installations and specifications for existing buildings vary. Call or write for specific details. A design manual is also available upon request. Shrink-wrap license terms are included on design manuals, installation instructions, and video training. For more information about the ten year limited material warranty, see thermaldesign.com.